



September 19, 1994

Ms. Liza I. Montalvo  
Remedial Project Manager  
Kentucky/Tennessee Section  
U. S. EPA  
Region IV  
345 Courtland Street, N. E.  
Atlanta, GA 30365

Re: Results of Air Quality Monitoring - FY 94 Fourth Quarter (FY94-4Q), Lees' Lane  
Superfund Site, Jefferson County, Kentucky Administrative Order on Consent,  
U. S. EPA Docket No. 91-32-C

Dear Ms. Montalvo:

In accordance with paragraph 11, under, Reporting Requirement, of the subject Consent Order and Attachment I, Operation and Maintenance Plan for Post-Removal Site Control at the Lees' Lane Landfill Site, Section 4.2, Air Quality Monitoring, attached for your information and files is one photocopy each of the following items, prepared by Radian Corporation, P. O. Box 13000, Research Triangle Park, North Carolina 27709, as received by MSD on September 9, 1994:

1. Radian Corporation letter, dated August 9, 1994, 3 pages.
2. Figure 1, Lees' Lane Landfill, Sampling Locations, 1 page.
3. Table 1, TO-14 Data Summary for Ambient Air Samples at the Lees' Lane Landfill, Sampling date: 6/8/94, 1 page.
4. Table 2, On-Site Meteorological Data, 6/8/94 1 page.
5. Table 3, TO-14 Data Summary for Gas Monitoring Well Samples at Lee's Lane Landfill, Louisville, KY, Sampling Date: 6/8/94, 1 page.

DOCUMENT CONTROL NUMBER 4400-83-AGWD





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Please advise if you have any questions concerning these sampling arrangements.  
Sincerely,



Carl A. Neumayer  
Director of Operations

CAN/dc  
CAN1:2z

cc: Mr. Jeff Pratt, KNREPC,  
Division of Waste Management  
Mr. Rick Hogan, KNREPC  
Division of Waste Management  
G. R. Garner, Executive Director  
File: WD-2 (Lees' Lane M & M Quarterly)

# **RADIAN**

CORPORATION

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|-----------|---------|----|
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August 9, 1994

Progress Center  
3200 E. Chapel Hill Rd./Nelson Hwy.  
P.O. Box 13000  
Research Triangle Park, NC 27709  
(919) 481-0212

Mr. Dan Sammons  
Chief Chemist  
Louisville Metropolitan Sewer District  
4522 Algonquin Parkway  
Louisville, Kentucky 40211

Dear Dan,

Enclosed is the summary analytical report for the ambient and gas monitoring well samples collected at the Lee's Lane Landfill site on June 8, 1994.

A map of the site; labelled with the sample collection locations for your reference, is shown in Figure 1. Table 1 is a tabular summary of the ambient samples with the primary analyte concentrations required for submission to EPA. All primary analytes are at typical ambient levels, except for methylene chloride. The methylene chloride concentration ranges from .56 to 19.13 ppbv.

The monitoring sites for this quarterly collection were chosen based on a combination of prevailing on-site meteorology and available sites in the adjacent residential neighborhood per the standard sampling protocol. It was sunny and warm for most of the monitoring day with a slight northeast breeze. Hourly readings of wind speed and direction from an on-site source were recorded by LMSD personnel. The meteorological data is summarized in Table 2. The ambient samples collected were integrated over a 7 to 8 hour collection period in SUMMA® canisters at 3 to 5 feet above ground level.

The methane analysis was performed by GC/FID on a separate analytical column prior to the TO-14 analysis at Radian's Perimeter Park Laboratory.. The TO-14 analytical methodology by Gas Chromatography/Mass Spectrometry (GC/MS) was employed for this set of quarterly samples. The GC/MS was chosen to identify the presence of TO-14 compounds. Samples were handled with standard laboratory chain-of-custody procedures. Sample canisters and flow controllers were cleaned and blanked by TO-12 for total hydrocarbons prior to field deployment. All ambient and gas well samples were successfully analyzed by the TO-14 methodology. Analytical difficulties were experienced with three of the gas well samples as noted below.



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Table 3 is a tabular summary of the gas well samples with the primary analyte concentrations required for submission to EPA. Each set of gas monitoring wells was screened with field monitors (OVA-128, combustible gas meter, and PhotoTip). The values for methane were recorded by the OVA-128. The OVA values were used to select the wellhead [Shallow (S) or Deep (D)] for collection of the canister sample.

The laboratory determined methane results are consistent for all the ambient air and the gas monitoring wells samples, except for LL-AS-G1D-07. The methane analysis indicated levels above the analytical detection limit. The ambient level of methane measured was approximately 2 ppmv, while the methane level measured in the gas wells ranged from 0.86 to 1052 ppmv. The laboratory determined methane values are higher than the reported field values due to the inherently greater analytical sensitivity. All field measurements from the OVA, Hnu, PhotoTip, and TMX were below the detection limit of each instrument. The laboratory measured methane results are consistent with results from the past sampling periods with the exception of G1D-07. The reason that the field survey instrument did not detect this elevated level of methane is unknown.

The TO-14 results by GC/MS analysis of the SUMMA® canisters are generally at or below the analytical detection limits with the exception of methylene chloride and toluene. All analyzes were successfully completed and reported. The canister sample from gas well G2D-07 contained elevated levels of carbon dioxide (CO<sub>2</sub>) which partially froze the cryogenic trap during analysis. This may have biased the resultant data slightly. The sample results passed quality control parameters, but are flagged as a matter of policy. The chromatographic retention time shifted for samples LL-AS-G3D-07 and LL-AS-A2-07, for an unknown reason. The retention time shift was accounted for in the final results and there was no impact on data quality.

With the exception of methylene chloride and toluene, very few TO-14 compounds were detected in either the ambient or gas well samples. The presence of methylene chloride was confirmed in 6 of the ambient air samples by the GC/MS. There are elevated levels in 3 of the ambient air samples. A second analytical system was used to confirm and quantify the reported MeCl<sub>2</sub> concentration for the LL-AS-A1-07 ambient air sample. The presence of toluene was detected in all 6 ambient samples, but elevated in only one sample. None of the gas well samples contained elevated levels of methylene chloride or toluene. The concentration of other primary analytes of benzene, xylene, and vinyl chloride are at or below the analytical detection limits.



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Radian appreciates the opportunity to assist your staff with this project. Please advise me at (919) 481-0212 if you have any questions.

Sincerely,



Robert F. Jongleux  
Senior Scientist

RFJ/jtl

Attachments  
Enclosed Diskette

cc: G.A. Holliden, Radian/LOU  
Jay A. Snyder, Radian/RTP



Figure 1. Lees Lane Landfill Sampling Locations

Not to scale.



**TABLE 1****TO-14 DATA SUMMARY FOR AMBIENT AIR SAMPLES AT THE LEE'S LANE LANDFILL  
LOUISVILLE, KENTUCKY****SAMPLING DATE: 6/8/94**

|                          |          |          |          |             |             |             |
|--------------------------|----------|----------|----------|-------------|-------------|-------------|
| Sample ID                | AS-U1-07 | AS-A1-07 | AS-A2-07 | AS-R1-07    | AS-R2-07    | AS-R3-07    |
| Canister ID              | A141752  | A127734  | A127724  | A167612     | A127721     | A141750     |
| Location                 | Upwind   | Downwind | Downwind | Residential | Residential | Residential |
| Dilution Factor          | .8502    | .7957    | .9082    | .8860       | .8756       | .8576       |
| Compound (conc. in ppbv) |          |          |          |             |             |             |
| Benzene                  | <0.50    | <0.50    | <0.50    | 0.57        | 0.52        | 0.70        |
| Toluene                  | 2.15     | 15.27    | 1.95     | 3.15        | 4.79        | 3.45        |
| Xylene (total)           | 0.79     | 1.58     | 1.49     | 1.13        | 1.48        | 1.44        |
| Methylene Chloride       | 14.53    | 15.91    | 0.56     | 19.13       | 1.81        | 3.22        |
| Vinyl Chloride           | <0.50    | <0.50    | <0.50    | <0.50       | <0.50       | <0.50       |
| Methane (ppm)            | 2.27     | 2.53     | 3.08     | 2.63        | 2.32        | 2.36        |

Note: less than values indicate compound was at or below the analytical detection limit.

**TABLE 2**  
**ON-SITE METEOROLOGICAL DATA**  
**JUNE 8, 1994**

| Time | Barometric Pressure<br>(in Hg) | Humidity<br>(%) | Wind<br>Direction<br>From | Wind Speed<br>(mph) | Observations  |
|------|--------------------------------|-----------------|---------------------------|---------------------|---------------|
| 830  | 29.56                          | 97              | 250°                      | <1                  | Sunny         |
| 900  | 29.69                          | 92              | 30°                       | 2                   | Sunny         |
| 930  | 29.69                          | 92              | 30°                       | 2                   | Sunny         |
| 1000 | 29.72                          | 79              | 10°                       | <1                  | Sunny         |
| 1030 | 29.74                          | 73              | 10°                       | <1                  | Sunny         |
| 1100 | 29.75                          | 75              | 50°                       | <1                  | Sunny         |
| 1130 | 29.70                          | 83              | 70°                       | 6                   | Sunny         |
| 1200 | 29.71                          | 80              | 60°                       | 6                   | Cloudy (Hazy) |
| 1230 | 29.71                          | 84              | 50°                       | 2                   | Cloudy (Hazy) |
| 1300 | 29.69                          | 84              | 70°                       | 5                   | Cloudy (Hazy) |
| 1330 | 29.70                          | 81              | 40°                       | 8                   | Cloudy (Hazy) |
| 1400 | 29.72                          | 76              | 60°                       | 5                   | Partly Sunny  |
| 1430 | 29.71                          | 76              | 50°                       | 5                   | Sunny         |
| 1500 | 29.67                          | 79              | 110°                      | 3                   | Sunny         |
| 1530 | 29.70                          | 76              | 50°                       | 3                   | Sunny         |
| 1600 | 29.74                          | 73              | 140°                      | 1                   | Sunny         |
| 1630 | 29.75                          | 79              | 30°                       | 2                   | Cloudy        |

**\*\* Compiled by LMSD personnel at Lee's Lane Landfill Site \*\***



**TABLE 3****TO-14 DATA SUMMARY FOR GAS MONITORING  
WELL SAMPLES AT THE LEE'S LANE LANDFILL  
LOUISVILLE, KENTUCKY****SAMPLING DATE: 6/8/94**

| Sample ID                | AS-G1D-07 | AS-G2D-07 | AS-G3D-07 | AS-G4D-07 | AS-G5SV-07 | AS-G5S-07 | FBL-07  |
|--------------------------|-----------|-----------|-----------|-----------|------------|-----------|---------|
| Canister ID              | A127727   | A127732   | A127729   | A127733   | A141767    | A141754   | A141762 |
| Dilution Factor          | .9099     | .9008     | .8751     | .8628     | .8751      | .9069     | 1       |
| Orifice                  | D-B1      | D-33      | D-6       | D-104     | D-8        | D-3       | --      |
| Compound (conc. in ppbv) |           |           |           |           |            |           |         |
| Benzene                  | <0.50     | <0.50     | <0.50     | 0.63      | <0.50      | <0.50     | <0.50   |
| Toluene                  | 5.73      | 1.06      | <0.50     | 7.24      | 2.85       | 2.61      | <0.50   |
| Xylene (total)           | 1.61      | <0.50     | <0.50     | 2.15      | 0.74       | 0.83      | <0.50   |
| Methylene Chloride       | <0.50     | <0.50     | <0.50     | 1.76      | <0.50      | <0.50     | <0.50   |
| Vinyl Chloride           | <0.50     | <0.50     | <0.50     | 0.60      | <0.50      | <0.50     | <0.50   |
| Methane (ppm)            | 1052      | .89       | .86       | 2.52      | 2.10       | 1.87      | .10     |

Note: Less than values indicate compound was at or below the detection limit